

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim1 (Canceled)

Claim 2 (Currently amended): ~~The data storage device according to claim 1, wherein the deviation detecting means comprises:~~ A data storage device comprising:

an actuator for supporting and moving a head for reading and writing data with respect to a recording medium;

a servo control unit for feeding back a position error signal obtained by scanning the recording medium by the head to control an operation of the actuator;

a notch filter for reducing a gain of a preset center frequency component from a servo signal transmitted from the servo control unit;

deviation detecting means for detecting deviation of a resonance frequency of the actuator from a center frequency set in the notch filter; wherein the deviation detecting means comprises:

a band-pass filter for passing a center frequency component corresponding to the resonance frequency from the servo signal transmitted from the servo control unit;

a phase shifter for receiving a signal containing the resonance frequency as an input, and for shifting a phase at the resonance frequency of the signal by a predetermined amount; and

a multiplier for multiplying the signal passed through the band-pass filter by the
signal passed through the phase shifter; and
changing means for changing a set value of the center frequency set in the notch filter
based on a result of the deviation detection by the deviation detecting means.

Claim 3 (Original): The data storage device according to claim 2, wherein the deviation detecting means further has an averaging unit for averaging output results of multiplication by the multiplier.

Claim 4 (Original): The data storage device according to claim 2, wherein the phase shifter comprises an all pass filter for generating a phase delay of 90 degrees as the predetermined amount.

Claim 5 (Original): The data storage device according to claim 2, wherein the changing means shifts the center frequency set in the notch filter to a low frequency side when a multiplication result by the multiplier exceeds a predetermined value, and to a high frequency side when the multiplication result by the multiplier drops below the predetermined value.

Claim 6 (Currently amended): The data storage device according to claim ~~1~~ 2, wherein the notch filter includes an all pass filter for passing the servo signal transmitted from the servo control unit, and a first adder for adding the signal passed through the all pass filter and the servo signal not passed through the all pass filter, and the band-pass filter includes the all pass filter,

and a second adder for adding a negative value of the signal passed through the all pass filter and the servo signal not passed through the all pass filter.

Claim 7 (Canceled)

Claim 8 (Currently amended): ~~The servo control method according to claim 7,~~ A servo control method comprising:

extracting a resonance frequency of a structure contained in a servo signal;

detecting deviation of the resonance frequency from a center frequency set in a notch filter; and

shifting the center frequency of the notch filter to the resonance frequency side; and

wherein the servo signal is passed through a band-pass filter.

Claim 9 (Currently amended): The servo control method according to claim 7 8, wherein a signal of the extracted resonance frequency is multiplied by a delay signal delaying the phase of the servo signal by 90 degrees, and the center frequency set in the notch filter is shifted to a low frequency side when an the deviation of the resonance frequency exceeds a predetermined value, and to a high frequency side when the deviation of the resonance frequency drops below the predetermined value.

Claim 10 (Original): The servo control method according to claim 9, wherein after the multiplication of the signal of the extracted resonance frequency by the delay signal delaying the phase of the servo signal by 90 degrees, output results of multiplication are averaged.

Claim 11 (Canceled)

Claim 12 (Currently amended): ~~The computer program according to claim 11,~~ A
computer program comprising:
a means of extracting a resonance frequency of a structure contained in a servo signal;
a means of detecting deviation of the resonance frequency from a center frequency set in
a notch filter; and
a means of shifting the center frequency of the notch filter to the resonance frequency
side; and
wherein the means of extracting the resonance frequency of the structure contained in the servo signal passes the servo signal through a band-pass filter.

Claim 13 (Currently amended): The computer program according to claim ~~11~~ 12,
wherein the means of detecting the deviation of the resonance frequency from the center frequency set in the notch filter multiplies a signal of the extracted resonance frequency by a delay signal delaying a phase of the servo signal by 90 degrees, and the means of shifting the center frequency of the notch filter to the resonance frequency side shifts the center frequency set in the notch filter to a low frequency side when an output of the means of detecting deviation

exceeds a predetermined value, and to a high frequency side when the output drops below the predetermined value.

Claim 14 (Original): The computer program according to claim 13, wherein the means of detecting the deviation of the resonance frequency from the center frequency set in the notch filter averages output results of multiplication after the multiplication of the signal of the extracted resonance frequency by the delay signal delaying the phase of the servo signal by 90 degrees.